

Friday, 2/23/2007 1:47:37 PM
User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD TUBE ASSEMBLY
Job Number	: 30925		
Estimate Number	: 10467		
P.O. Number	: <i>N/A</i>	Part Number	: D3391021
This Issue	: 2/23/2007	S.O. No.	: <i>N/A</i>
Prsht Rev.	: NC	Drawing Number	: D3391 <i>UNDER REVIEW AA 07.02.26</i>
First Issue	: <i>N/A</i>	Project Number	: N/A
Previous Run	: 30924	Drawing Revision	: <i>EF</i>
	Type : MACHINED PARTS	Material	: <i>SM</i>
Written By	:	Due Date	: 3/21/2007
Checked & Approved By	: <i>AA 07.02.26</i>	Qty:	1 Um: Each
Comment	: Est. A 05.09.13 New issue KJ/JLM		
	: Est. B 06.02.10 Dwg rev.D ecn 773 EC		
	: Est. C 06.05.02 Added inspections EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description:
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1.0	D6013047	SKIDTUBE MAT'L
-----	----------	----------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description
1	D6013-047	Extrusion

Batch

*B 26547**JD 7-3-22*

2.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

JD 7-3-8

3.0	BENDING	BENDING MACHINE
-----	---------	-----------------



Comment: No bender

Bend as per Dwg D3391 Using Bend Prog 3391021

EL 7-3-28

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

DP 7-3-29

5.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
-----	-------	--------------------------------



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. *AA* & Dwg D3391 Rev. *E*

Identify as D3391-1

2-Deburr

BC 07.04.02

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:37 PM
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Process Sheet

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Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30925

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

BC 07-04-07

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

mk 07/04/02

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c/sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

6--Deburr

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07-04-20

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

M-L

07/04/23

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

07-04-23

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

LL

07-04-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:37 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30925

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Feb

07/04/27 ①

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

14

NAS1330C3KB166

Insert

m103278

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg

Feb

07/04/27 ①

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

2005-01 ①

17.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Tow Cap Assembly

Pick:

Qty

Part Number

Description

Batch

1

D3401-041

Tow Cap

B31346

18.0

AN3C4A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

AN3C4A

Bolt

M103691

TURNOVER

19.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Washer

Pick:

Qty

Part Number

Description

Batch

m-h 07/05/03

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
07.05.18	18.	ADD 03564-1 ^{woorplate} Wasket (1) <u>M31398</u> 03566-13 Wasket (1) <u>B31348</u> PERMANENT CHANGE	RH 07.05.18				

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:38 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30925

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description:

4

NAS1515H3L

Washer

M103641

20.0

AN960C10L

washer



10 PH 07.05.02



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
washer

M104215

21.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1
Install tow Cap as per Dwg D3391
Identify as D3391-021

M.A 07/05/03

22.0

QC5

INSPECT WORK TO CURRENT STEP



070511

Comment: INSPECT WORK TO CURRENT STEP
Inspect thread of each insert using DT8821

23.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: _____

PRP B 30363

07/05/11 59

24.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

070511

Job Completion



07-05-11

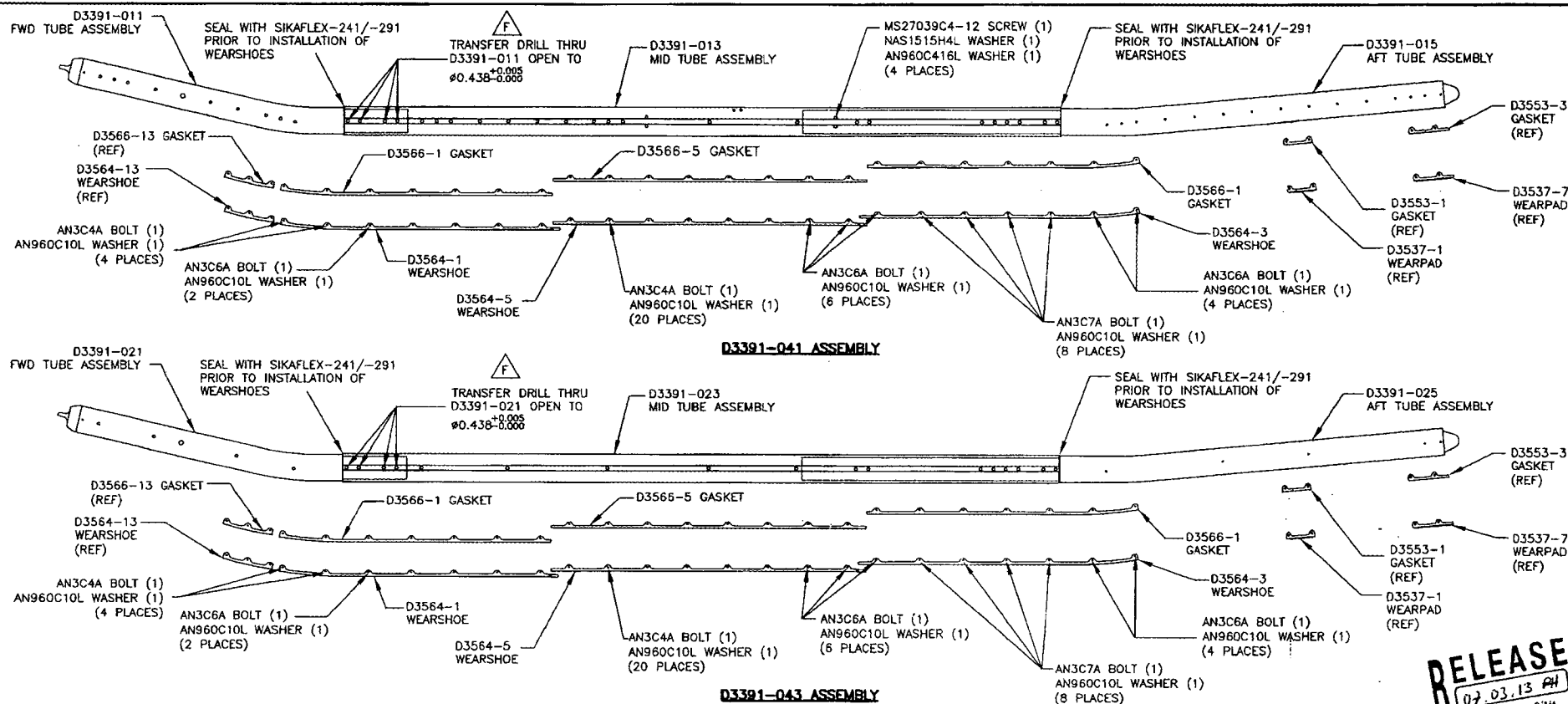
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
1	1	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	1	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	1	D3391-011	FWD TUBE ASSEMBLY
1	1	D3391-013	MID TUBE ASSEMBLY
1	1	D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

GENERAL NOTES

- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (Ø0.250-Ø0.257) FOR WEARSHOE INSERTS. C'SINK Ø0.391/Ø0.425 x 100' AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

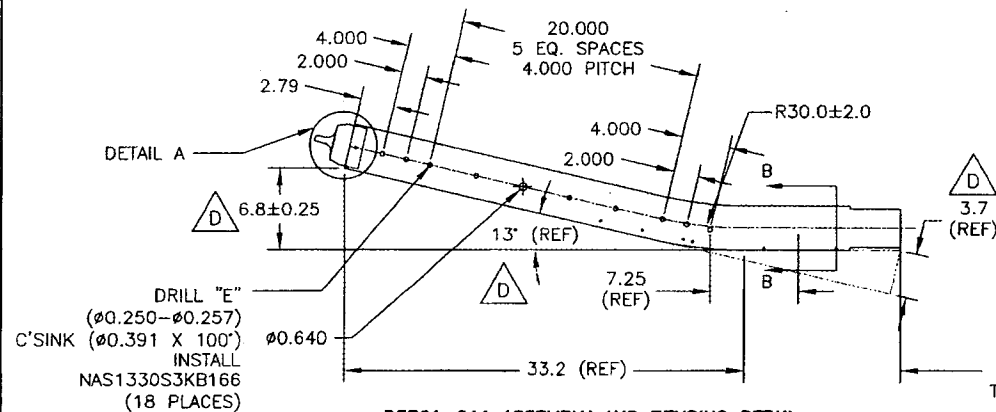
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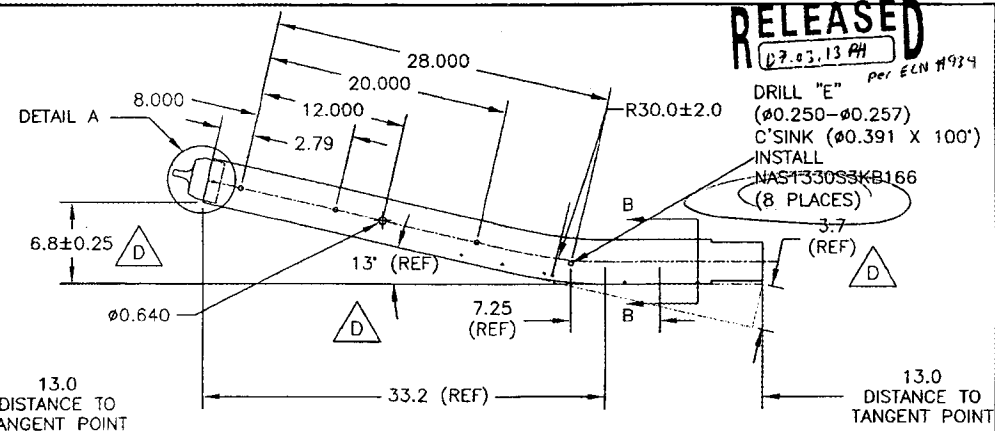
F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	PH	DRAWN BY PH
CHECKED	PH	APPROVED PH
DATE	07.01.18	TITLE
		412 FLOAT SKIDTUBE
		REV. F
		SHEET 1 OF 5
		SCALE
		NTS

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PORT HADLOCK, MA

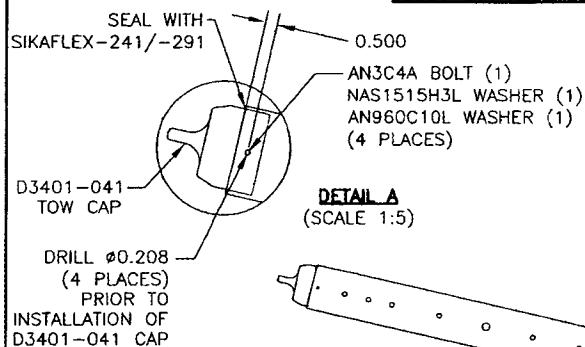
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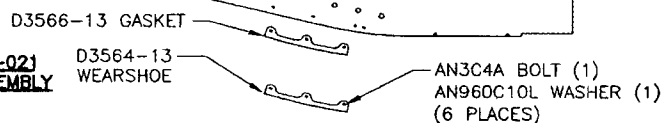
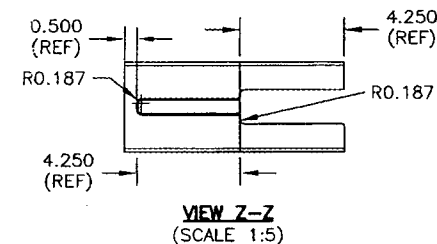
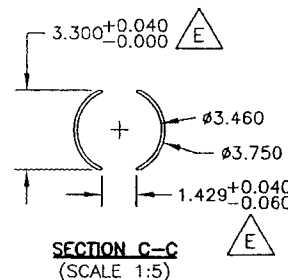
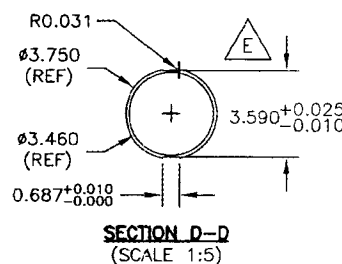
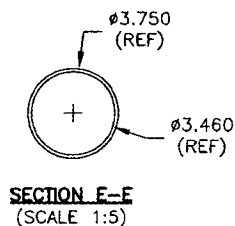
D3391-011 ASSEMBLY AND BENDING DETAIL



D3391-021 ASSEMBLY AND BENDING DETAIL



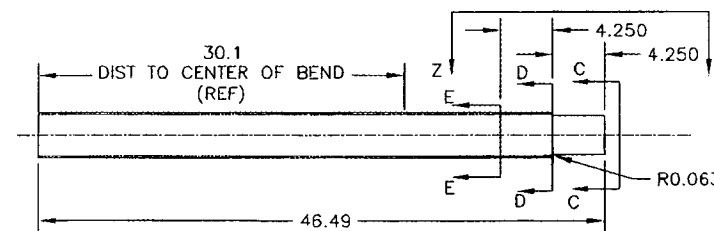
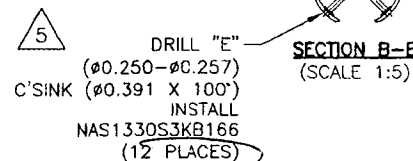
DETAIL A
 (SCALE 1:5)



D3391-011/-021 WEARSHOE ASSEMBLY

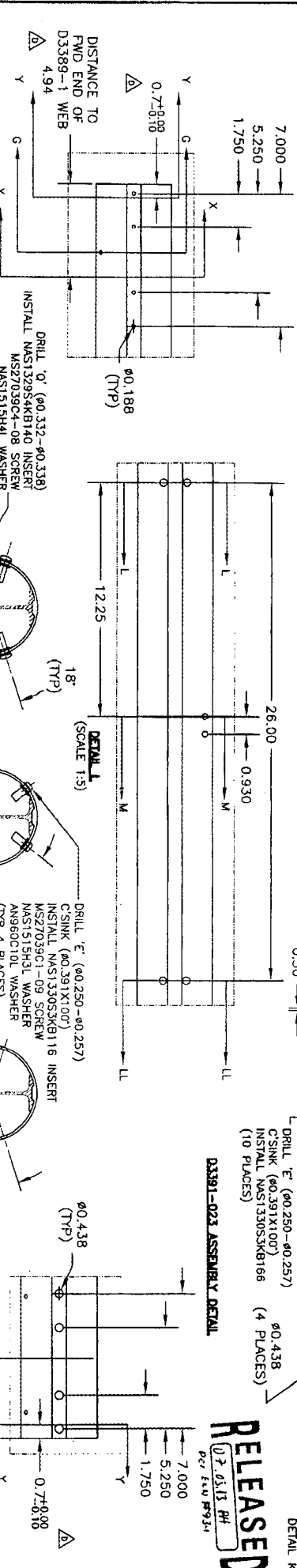
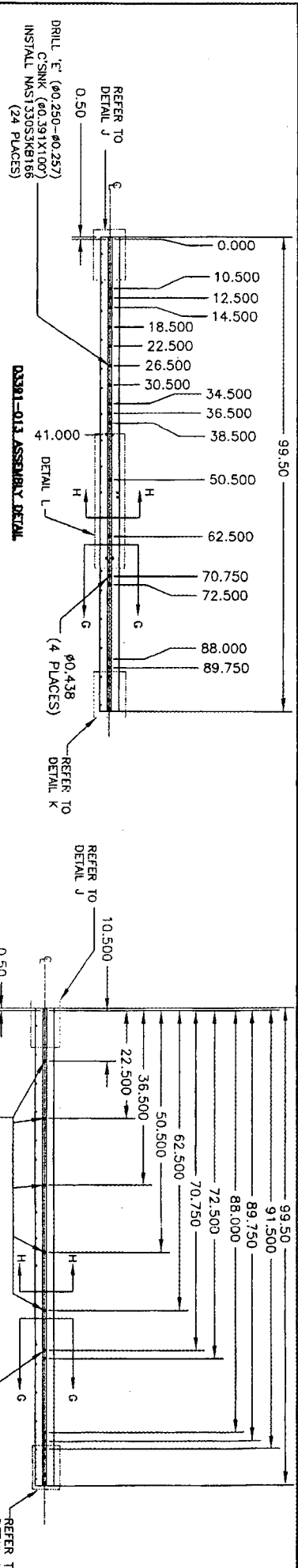
D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)



D3391-1 DRILLING AND CUTTING DETAIL
 (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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CHECKED A	APPROVED A	DRAWING NO. D3391		REV. F SHEET 2 OF 5	
DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE		SCALE 1:10	



DETAIL J
(SCALE 1:5)

SECTION L-L
(SCALE 1:4)

SECTION M-M
(SCALE 1:4)

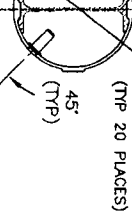
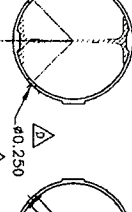
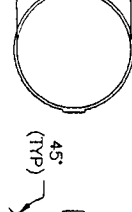
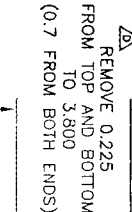
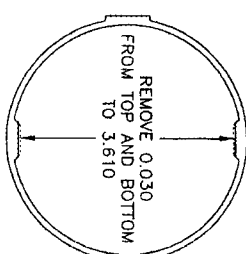
SECTION N-N
(SCALE 1:4)

SECTION O-O
(SCALE 1:4)

SECTION P-P
(SCALE 1:4)

D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X	X	D3391-013	MID TUBE ASSEMBLY
X	X	D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330S3K8116	INSERT (OR NAS1330C3K8116)
24	10	NAS1330S3K8166	INSERT (OR NAS1330C3K8166)
4	4	NAS1329S4K8140	INSERT (OR NAS1329C3K8140)
4	4	NAS1515H41	WASHER
4	4	AN960C10L	WASHER
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER
4	4	MS27039C1-09	SCREW
4	4	MS27039C4-08	SCREW



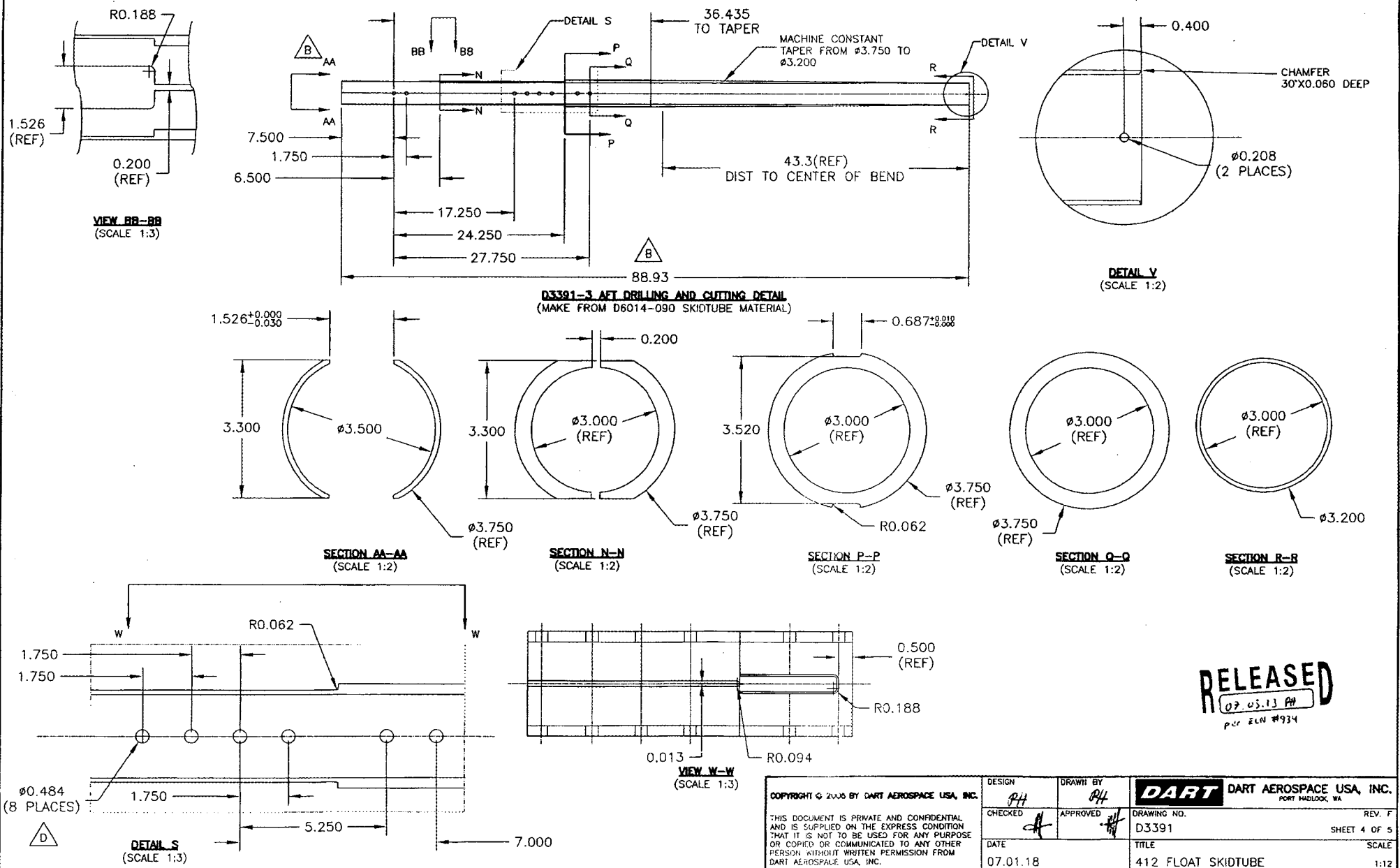
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SKATLX-241/-291 PER Q1 015

SECTION X-X
(SCALE 1:2)

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DESIGN	DRAWN BY	DATE	TITLE
PH	PH	07/01/18	412 FLOAT SKIDTUBE
CHECKED	APPROVED	DRAWING NO.	REV. F
PH	PH	D3391	SHEET 3 OF 5
SCALE			1:20

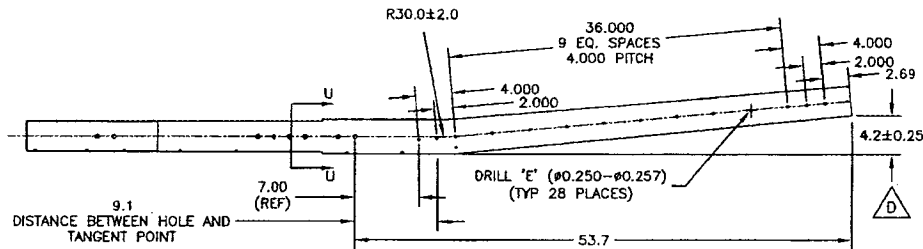
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07-03-13
PER 1408 P934



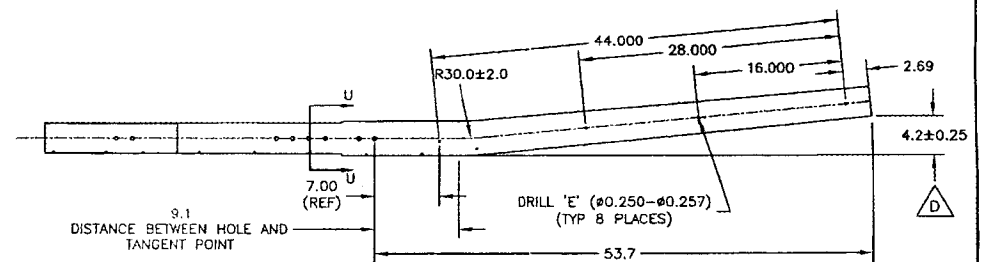
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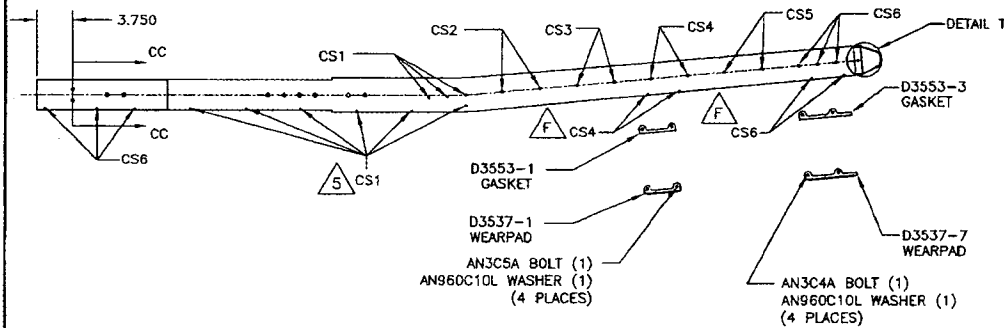
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CHECKED H	APPROVED H	DRAWING NO. D3391	SHEET 4 OF 5
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	SCALE 1:12	



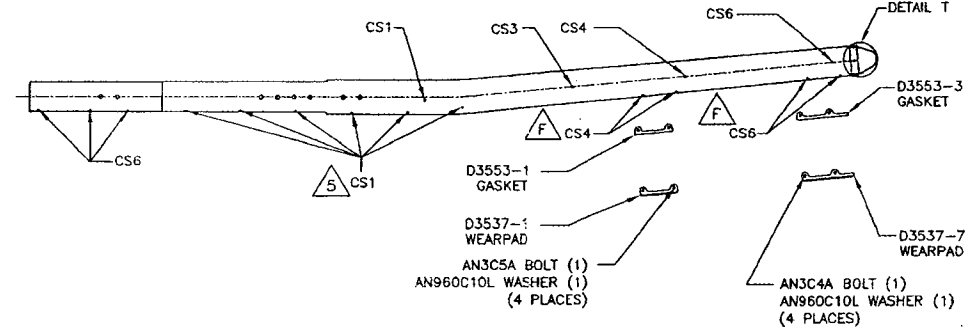
D3391-015 BENDING AND ASSEMBLY DETAIL



D3391-025 BENDING AND ASSEMBLY DETAIL



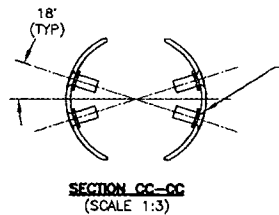
D3391-015 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)



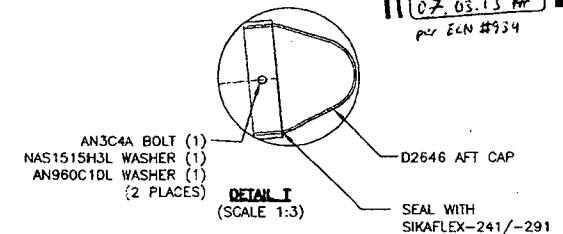
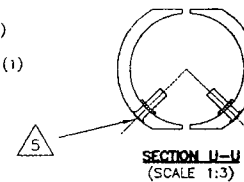
D3391-025 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



DRILL 'O' (#0.332-#0.338)
C'SINK (#0.529X100)
NAS1330S4KB151 INSERT (1)
(4 PLACES)



C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	NAS1330S3KB366
CS2	4		Ø0.391	NAS1330S3KB366
CS3	4	2	Ø0.391	NAS1330S3KB316
CS4	8	6	Ø0.391	NAS1330S3KB266
CS5	4		Ø0.391	NAS1330S3KB216
CS6	16	12	Ø0.391	NAS1330S3KB166

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FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article** ☐ **Prototype**

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Measured by: <i>BC</i>	Audited by: <i>ml</i>	Prototype Approval:	N/A
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Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	